

REMARKS

Claims 1-10 are pending in the present application. With entry of this Amendment, Applicants amend claims 1, 2, 4, 5 and 7-10 and cancel claim 3 without prejudice. Reexamination and reconsideration are respectfully requested.

A. Rejection under § 112, second paragraph

The Examiner rejected claims 1-10 under 35 U.S.C. § 112, second paragraph, based on the term “isochroous transfer.” Applicants have amended the claims to recite “isochronous transfer.” Accordingly, Applicants respectfully request that the rejection be withdrawn.

B. Rejection under § 102

The Examiner rejected claims 1-10 under § 102(b) as being anticipated by Fujimori et al. (U.S. Patent No. 6,148,051). The rejection is respectfully traversed.

Claim 1

The present invention is directed to a command synchronization establishment system. The system includes a network with nodes. The nodes include a controller, such as a PC, that issues commands to other nodes or targets in the network. It is very important to be able to synchronize the operations of one or more targets. The present invention describes a system that does so.

The system comprises a network with a cycle master node. The cycle master node periodically transmits a cycle start packet to each node on the network. Each node synchronizes its clock in accordance with the time information included in the cycle start packet, thereby resulting in a shared clock.

The system also comprises a controller connected to the network that transmits a command including a time-stamp based on the shared clock to a target apparatus via an asynchronous transfer.

The system also comprises the target apparatus. The target apparatus receives the command. It transmits a response to the controller reflecting that the received command will be executed when a current time based on the shared clock reaches a time represented by the time-stamp included in the command. The target apparatus executes the command when the current time reaches the time represented by the time stamp and provides a response indicating completion of executing the command.

Applicants have made four principal amendments to claim 1.

First, Applicants have amended claim 1 to recite: “a network wherein a cycle master node managing time on the network periodically transmits a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node” Support for this amendment is found in the specification and drawings including, without limitation, at page 7, line 5 to page 8, line 1.

Second, Applicants have amended claim 1 to recite that the controller transmits a command including a time-stamp “based on the shared clock to a target apparatus by using the asynchronous transfer” Support for this amendment is found in the specification and drawings including, without limitation, at page 8, lines 2-12.

Third, Applicants have amended claim 1 to recite that the target apparatus transmits a response to the controller “reflecting that the received command will be executed when a current time based on the shared clock reaches a time represented by the time-stamp included in the command” Support for this amendment is found in the specification and drawings including, without limitation, at page 8, line 21 to page 9, line 8 and Fig. 3B. The cited section and figure discuss or display an “interim response” from the target to the controller that the command with the time stamp has been received by the target apparatus.

Fourth, Applicants have amended claim 1 to recite that the target apparatus comprises: “an executing device that executes the received command when a current time based on the shared clock reaches the time represented by the time-stamp included in the command to be executed, and a replying device that provides a response indicating completion of executing the command.” Support for this amendment is found in the specification and drawings including, without limitation, at page 8, line 21 to page 9, line 8 and Fig. 3B.

In contrast, Fujimori fails to disclose at least the last two quoted recitations. Fujimori is directed to a synchronous data transfer system such as illustrated in Fig. 2. The system includes a transmitting node 10, a receiving node 20 and a master node 30. The master node produces a cycle start packet in the form of a sync signal as disclosed in Col. 4, lines 53-55. The transmitting node 10 then transmits a data train 9 to the receiving node 20. Fujimori discloses that the frequencies of the internal clock oscillators may deviate, and thus discloses an interface at the receiving node for correctly restoring the original data based on the synchronization. (*See, e.g.*, Col. 5, line 53 to Col. 7, line 43.) However, there is no disclosure in Fujimori of the receiving node transmitting a response to a controller “reflecting that the received command will be executed when a current time based on the shared clock reaches a time represented by the time-stamp included in the command” and having “an executing device that executes the received command when a current time based on the shared clock reaches the time represented by the time-stamp included in the command to be executed, and a replying device that provides a response indicating completion of executing the command.”

Accordingly, Applicants respectfully submit that claim 1 is not anticipated by Fujimori.

Claims 2 and 3

Applicants have amended claim 2 to place it in independent form. Claim 2 recites the same amended recitations as claim 1, except for the executing and reply devices of claim 1. Claim 2 instead recites: “an executing device that executes the received command before a current time based on the shared clock reaches the time represented by the time-stamp included in the command

to be executed and validates a result of the execution of the received command when a current time based on the shared clock reaches the time represented by the time-stamp.” Support for this amendment is found in the specification and drawings including, without limitation, at page 12, lines 14-22. Claim 3 has been canceled without prejudice.

Applicants respectfully submit that claim 2 is not anticipated by for at least the reasons set forth above with respect to claim 1. Fujimori fails to disclose that the receiving node transmits a response to a controller “reflecting that the received command will be executed when a current time based on the shared clock reaches a time represented by the time-stamp included in the command . . .”

Claims 4-6

Claims 4-6 depend from claim 1. Applicants have amended claims 4 and 5 to better claim the invention and in view of the amendments to claim 1. Applicants respectfully submit that claims 4-6 are not anticipated by for at least the reasons set forth above with respect to claim 1.

Claim 7

Claim 7 is directed to a command synchronization establishment method and has been amended in a similar manner to claim 1. Applicants respectfully submit that claim 7 is not anticipated by Fujimori for at least the reasons set forth above with respect to claim 1.

Claim 8

Claim 8 is directed to a controller for a command synchronization establishment system. Applicants have amended claim 8 in a similar manner to claim 1 and to define the environment in which the controller operates. As discussed above, there is no disclosure in Fujimori of a controller having “a receiver that receives the response reflecting that the received command will be executed when a current time based on a shared clock reaches a time represented by a time-stamp included in

the command and a response indicating completion of executing the command.” Accordingly, Applicants respectfully submit that claim 9 is not anticipated by Fujimori.

Claim 9

Claim 9 is directed to a target apparatus and has been amended in a similar manner to the target apparatus of claim 1. As discussed above with respect to claim 1, there is no disclosure in Fujimori of the receiving node transmitting a response to a controller “reflecting that the received command will be executed when a current time based on the shared clock reaches a time represented by the time-stamp included in the command” and having “an executing device that executes the received command when a current time based on the shared clock reaches the time represented by the time-stamp included in the command to be executed; and a replying device that provides a response indicating completion of executing the command.” Accordingly, claim 9 is not anticipated by Fujimori.

Claim 10

Claim 10 is directed to a command synchronization system. Claim 10, as amended, recites: “means for transmitting a response to the controller reflecting that the received command will be executed when a current time based on the shared clock reaches a time represented by the time-stamp included in the command; means for executing the received command when a current time based on the shared clock reaches the time represented by the time-stamp included in the command to be executed; and means for providing a response indicating completion of executing the command.” Accordingly, Applicants respectfully submit that claim 10 is not anticipated by Fujimori.

C. Rejection under § 101

The Examiner rejected claims 1-6 and 8-10 under § 101, because “the claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101.” (*See Office Action*, at page 2.) The rejection is respectfully traversed.

Applicants note that independent claims 1, 2, 8 and 9 are directed to the statutory classes of machine and manufacture. Each of these claims expressly recites at least one physical article. For example, claims 1, 2 and 9 recite a "target *apparatus*" while claim 8 recites a *controller* for a command synchronization establishment system. As for independent claim 10, it recites means-plus-function elements expressly allowed under § 112, sixth paragraph. Accordingly, Applicants respectfully request that the rejection be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at (213) 892-5630.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 393032040300. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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